Environmental Assessment
New NDOW Guzzlers in the McCullough Range

Prepared by
U.S. Department of the Interior
Bureau of Land Management
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Chapter 1. Introduction

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1.1. Identifying Information:

1.1.1. Title, EA number, and type of project:

New Bighorn Sheep Guzzlers in the McCullough Range

DOI-BLM-NV-S010–2014–0119–EA

1.1.2. Location of Proposed Action:

Two locations in the North McCullough Range. One is in the Sloan NCA (McCullough #5) and one is in the Las Vegas Field Office (McCullough #6). The locations are as follows (also see maps under Proposed Action):

McCullough #5: T24S R62E Sect 11 NW1/4NW1/4

McCullough #6: T25S R61E Sect 1 SW1/4NE1/4

1.1.3. Name and Location of Preparing Office:

Las Vegas Field Office

4701 N. Torrey Pines Dr.

Las Vegas, NV 89130

1.1.4. Identify the subject function code, lease, serial, or case file number:

N/A

1.1.5. Applicant Name:

Nevada Department of Wildlife and BLM

1.2. Purpose and Need for Action:

The purpose and need of the proposed action is to help meet Bureau of Land Management's requirements for sensitive species management as directed under BLM Manual 6840 and to cooperate in management of bighorn sheep with the Nevada Department of Wildlife (NDOW). In 1980, a Cooperative Action Plan between the NDOW and BLM identified the North McCullough Range as a priority range for wildlife water developments to enhance desert bighorn sheep (*Ovis canadensis nelsoni*) habitat. Desert bighorn sheep are a BLM sensitive species. The McCullough Range was found to be one of only two decreasing populations of desert bighorn sheep in Nevada and providing yearlong water was seen as a method to eliminate the primary limiting factor and potentially reverse a downward population trend. In partnership from 1985 through 1989, the

BLM and the NDOW constructed four wildlife water developments in the McCullough Range for improving habitat conditions and population distribution of desert bighorn sheep.

Presently, the McCullough Range includes 141,440 acres of occupied desert bighorn sheep habitat. Due to increased human use of and development surrounding the area, there is an increasing need to provide reliable water sources to desert bighorn sheep in the area. Furthermore, there has been extreme variability in annual rainfall in recent years and due to habitat fragmentation, bighorn sheep in this area no longer have the ability to move freely to adjacent mountain ranges to follow irregular "green-up" patterns, as occurred in the past. Under current conditions, desert bighorn sheep must remain stationary at existing water developments during the warmest and driest time of year because the nearest water source is beyond their average range of mobility. During record-setting high temperatures of 2005, the possible loss of water at the McCullough #3-Roy water development led to the death of 22 desert bighorn sheep. In order to decrease the distance between water developments, NDOW has proposed to install two additional bighorn sheep water developments in the McCullough Range.

The decision to be made by the BLM is whether or not to approve the construction of the two new guzzlers.

1.3. Scoping, Public Involvement and Issues:

The project was internally scoped to BLM resource specialists in fall of 2014 to identify any resource concerns. The only issues that were raised during internal scoping were wildlife, migratory birds, threatened and endangered species, rangeland health, vegetation, and grazing.

Chapter 2. Proposed Action and Alternatives

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2.1. Description of the Proposed Action:

The proposed action is to install two new artificial water developments in the McCullough Range (Figure 2.1). The proposed McCullough #5 location is on the northeast portion of McCullough Range overlooking the Eldorado Valley. This location is outside of the North McCullough Wilderness Area but within the Sloan Canyon National Conservation Area (NCA). Due to its remote location, it would not be visible from any existing trails or roads in the Sloan NCA. The construction of the unit would require the use of a helicopter to transport materials and personnel. Staging for helicopter operations would occur in a previously disturbed location in Eldorado Valley. Subsequent inspections and maintenance of McCullough #5 would occur during annual inspection flights, aerial surveys, or by foot. Construction would occur in winter or spring of 2015 or 2016.

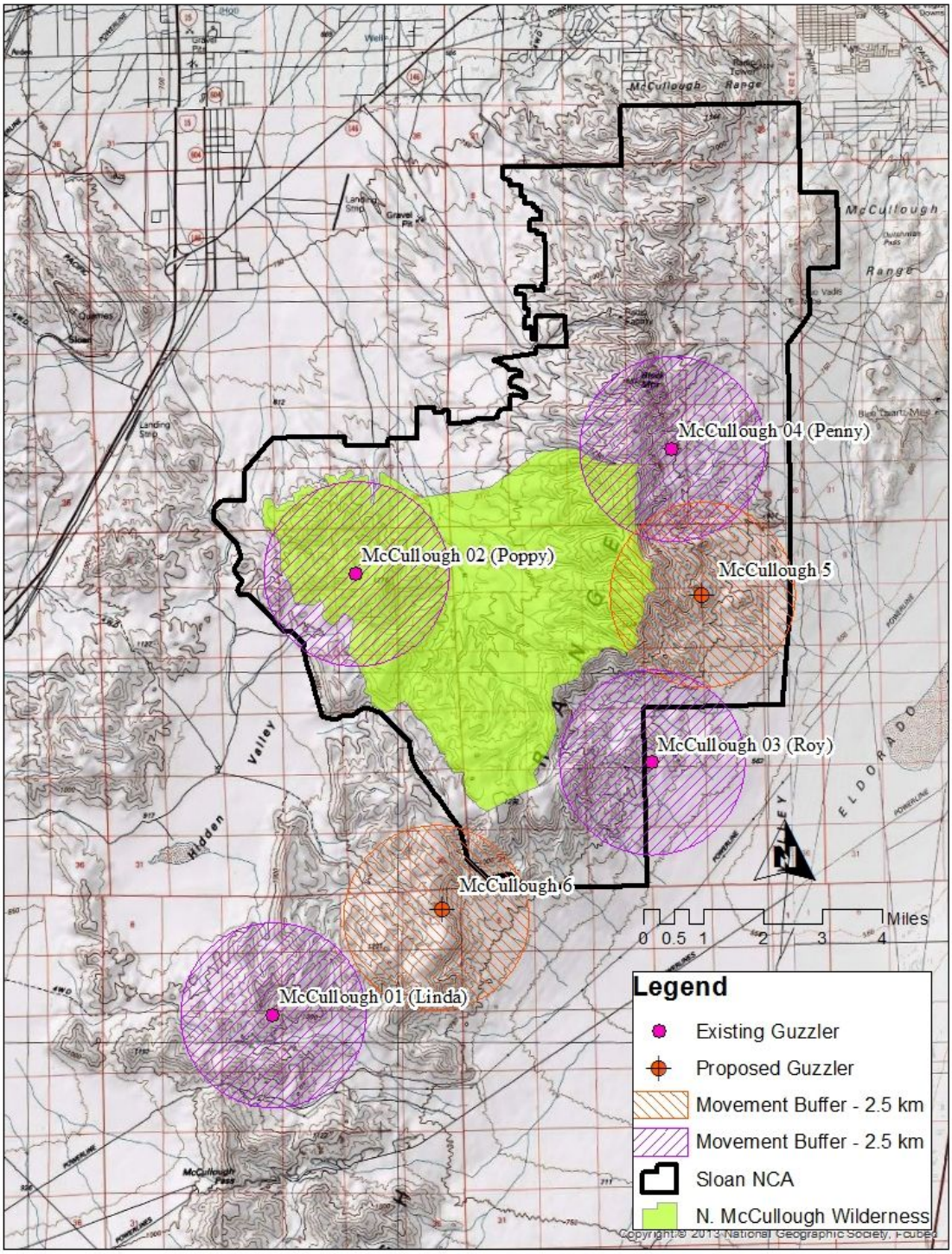

Figure 2.1. Map of existing and proposed bighorn sheep guzzlers in the McCullough Range.

The proposed McCullough #6 location is on the north-central portion of the McCullough Range near McCullough Pass. This location is on public lands administered by the Bureau of Land Management and outside of the North McCullough Wilderness Area and the Sloan Canyon

National Conservation Area (NCA). Although access to the site is possible by vehicle following a 4 wheel-drive road from Hidden Valley, a helicopter will be used to transport materials and personnel to the construction site to minimize incidental disturbance. Staging for helicopter operations would occur in a previously disturbed location on the Hidden Valley side of the McCullough Range. Subsequent inspections and maintenance of McCullough #6 would occur during annual inspection flights, aerial surveys, or by vehicle. Construction would occur in the winter of 2015.

Precipitation at the 2 proposed locations will be captured on a 40 ft. by 80 ft. (3200 ft^2) metal apron composed of steel roof decking and c-channel purlins (Fig. 2.2). The apron will be constructed on a slope with a minimum grade of 1% to facilitate the downhill flow of water. Hand-tools will be used to remove vegetation and protruding rocks from the apron site prior to installation. Sheet metal or rocks will line the edges of the apron to prevent wind from blowing under the apron. Water collected on the apron will be transported to the storage tanks using $\leq$300 ft of 2 inch polyethylene pipe. The polyethylene pipe will be buried, where possible, in a trench 4 inches wide and 6 inches deep.

Figure 2.2. Example metal apron

Both new water developments will be capable of storing up to 9,200 gallons of water in 4 low-profile tanks (Fig. 2.3). Each storage tank will be of the approximate dimensions of 8.5 ft. wide, 16 ft. long, and 2.5 ft. high. Tanks will be placed successively on a dirt pad leveled with hand-tools and a generator-powered rotary hammer at the McCullough #5 location or a John Deere 110 Backhoe at the McCullough #6 location. Standard 1/2 in. to 3/4 in. plywood will be

placed on the tank pad between tanks and ground to protect the tanks from rock punctures. The cumulative disturbance footprint for the tank pad will be 16 ft. x 34 ft. or 544 ft^2.

Figure 2.3. Example storage tanks

Water will be transported $\leq$ 100 ft. from the storage tanks to the drinker in a 2 in. polyethylene pipe. The polyethylene pipe will be buried, where possible, in a trench 4 in. wide and 6 in. deep. The drinker, capable of storing up to 84 gallons of water, is the wildlife access point and is constructed to allow safe use by desert bighorn sheep and other wildlife (Fig. 2.4). The top of the drinker will be leveled to the top of the tanks, allowing for the water level in the drinker to be representative of the water level in the tanks (i.e., an equilibrium or self-leveling system). The drinker will be rocked and concreted in place resulting in a disturbance footprint of approximately 6 ft. x 6 ft. or 36 ft2. The concrete used to support the drinker will be mixed using a portable cement mixer with generator.

Figure 2.4. Example drinker

A 3-rail pipe-jack fence will be installed around the apron at McCullough #6 location to minimize risk of vehicle damage to the apron (Fig. 2.5). The fence will also effectively exclude large bodied herbivores. It will measure 96 ft. by 48 ft and rail heights will be at 42 in., 30 in., and 17 in. above the ground. A total of 28, 50 in. jack posts will be installed at 12 ft. increments along the fence with green, studed, metal t-posts installed at every other jack to provide added stability. The only ground disturbance associated with the installation of the pipe-jack fence will be from the driving of t-posts.

Figure 2.5. Example pipe-jack fence

An approximately 200 ft. long gap fence may be installed along the access road to McCullough #6 due to the potential for degradation of the water development by livestock in the Hidden Valley grazing allotment. A 3-strand barbwire fence would be installed at the coordinates of 11 S 670432 39663880 in a general east-west direction and "tied" to rock ledges on either end of the fence. Wire spacing would be approximately 16 in., 36 in., and 42 in. above ground level. The fence would have green, studded, metal t-posts, spaced approximately 16 ft. apart with stays between the posts to maintain wire spacing. A welded pipe-gate with posts cemented in-place with would be installed where the fence crosses the access road. The gate would not be locked but secured with a chain and carabineer to allow public access.

Once construction is complete, the collection aprons, tanks, and piping will be camouflaged with brushes and a gas-powered paint sprayer using Sherwin-Williams A-100 Flat Latex paint using the BLM's Visual Resource Management Best Management Practices. All waste and left-over materials and supplies will be removed. The cumulative disturbance footprint of each project is not expected to exceed 4,000 ft^2 or approximately 1/10th of an acre.

Annual inspections will be conducted by NDOW and Fraternity of the Desert of the Desert Bighorn personnel following construction of each project to ensure proper functionality and to monitor use by bighorn sheep and other wildlife. Aerial inspections will be conducted during the winter of each year, while ground inspections by foot at McCullough #5 or by vehicle at McCullough #6 will occur opportunistically. Maintenance activities will be confined to the existing disturbance boundary and may include procedures such as fence repair, repainting,

plumbing repair, drinker replacement, or tank repair. NDOW will notify the BLM when a major repair is necessary (e.g., complete replacement of project components).

2.2. Description of Alternatives Analyzed in Detail:

Alternative B: No Action

Under the no action alternative, the two proposed new artificial water developments would not be constructed.

2.3. Alternatives Considered but not Analyzed in Detail

While alternative locations for the proposed guzzlers could have been considered, the potential resource impacts would have been similar to the locations in the proposed action. Thus only the proposed locations were analyzed in detail.

2.4. Conformance

The EA is in conformance with the goals, objectives, and decisions of the following BLM Land Use Plans:

- Record of Decision for the Approved Las Vegas Resource Management Plan (1998).
    - Objective FW-1. Maintain or improve approximately 869,800 acres of current and potential bighorn sheep habitat toward full ecological potential.
    - Management Direction FW-1–a. Maintain and improve bighorn sheep habitat by maintaining existing water developments, constructing additional water developments, and protecting/improving springs, seeps and riparian habitat, consistent with BLM policy.
    - Management Direction FW-1–b. Evaluate discretionary activities proposed in bighorn sheep habitat and on a case-by-case basis.
- Sloan Canyon National Conservation Area Record of Decision for the Approved Resource Management Plan and Approval of the North McCullough Wilderness Management Plan (2006).
    - Objective: Maintain or enhance habitat quality and quantity to adequately support the life history requirements of a diversity of wildlife species.

The proposed action is in compliance with the following laws:

- The Federal Land Policy and Management Act of 1976 (43 U.S.C. §§ 1701-1782, October 21, 1976, as amended 1978, 1984, 1986, 1988, 1990-1992, 1994 and 1996).
- The National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321-4347, January 1, 1970, as amended 1975 and 1994).
- Executive Order 13443: Facilitation of Hunting Heritage and Wildlife Conservation (2007).

The proposed action is in conformance with the following guidelines and manuals:

- BLM Manual 6840 – Special Status Species Management.
- Wildlife Management Guidelines (House Report No. 101-405, Appendix B).
- Rangewide plan for managing habitat of desert bighorn sheep on public lands. U.S. Department of the Interior. Gov Doc I53.2: B48.
- Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska. Fish and Wildlife 2000 series.

Chapter 3. Affected Environment

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The following items displayed in the tables below have been evaluated for the potential for significant impacts to occur, either directly, indirectly or cumulatively, due to implementation of the proposed action. The Mandatory Items for Consideration and Supplemental Authorities are displayed in Table 1, below. Consideration of some of these items is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general, and to the Southern Nevada District in particular.

Rationales for those elements not further analyzed are also listed in the table. These items will not be considered further in this document. The items with identified potential impacts are described following the table in the Affected Environment and potential impacts analyzed in the Environmental Effects section.

Table 3.1. Mandatory Items for Consideration and Supplemental Authorities

Resource/Concern Considered	Determination	Rationale for Determination
Air Resources	Not Impacted to the level needing further analysis (NI)	The size of the project site is under the .25 acre limit (in the aggregate), however the quantity of personnel (and volunteers) used, may cause this project to need to obtain a dust control permit. If no permit is required, per Clark County Department of Air Quality, implementing best management practices and not creating additional disturbance, by material lay down areas or parking issues associated with the quantity of personnel used to help with the project, would help minimize dust issues.
Areas of Critical Environmental Concern	Not Present (NP)	Neither proposed guzzler is within an ACEC.
BLM Natural Areas	NP	Resource not present.
Cultural Resources	NP	Based on a review of relevant maps, literature, and a preliminary field recon, no cultural resources will be affected by the undertaking.
Greenhouse Gas Emissions	NI	Currently there are no emission limits for suspected Greenhouse Gas (GHG) emissions, and no technically defensible methodology for predicting potential climate changes from GHG emissions. However, there are, and will continue to be, several efforts to address GHG emissions from federal activities, including BLM authorized uses.
Environmental Justice	NP	It is unlikely that any minority or low-income communities are present in project area.
Farmlands (Prime or Unique)	NP	There are no prime or unique farmland designations in the District.
Fish and Wildlife Excluding Federally Listed Species	Present and potentially impacted (PI)	Construction of the guzzlers may impacts wildlife and the guzzlers will provide a positive impact to bighorn sheep and other species.
Floodplains	NP	There are no FEMA designated floodplains present in the project area.
Fuels/Fire Management	NI	Compliance with fire restrictions current at time of project implementation will mitigate any risks introduced by the proposed actions. Specific, noncompliant activities may be waived on a case by case basis by a line officer after review and approval by the Fire Management Officer.
Geology / Mineral Resources/Energy Production	NI	No mining claims or mining operations present.

Hydrologic Conditions	NI	Project location and size will not impact hydrologic conditions of the area.
Invasive Species/Noxious Weeds	NI	Minimal surface disturbance in this project poses no serious threats to spread of Invasive Species / Noxious Weeds.
Lands/Access	NI	By having all vehicles stay on existing roads or walking equipment in to the site, ground disturbance would be minimized and there would be no lands or access impacts.
Livestock Grazing	PI	The McCullough #6 guzzler is located within the Hidden Valley grazing allotment. Potential impacts to livestock operations are carried forward for analysis
Migratory Birds	PI	There is a potential to impact nesting birds depending on the timing of construction of the guzzlers.
Native American Religious Concerns	NP	Based on the development of the Sloan NCA RMP Native American consultations/ coordination, there have not been any issues identified relevant to Native American religious concerns in the vicinity of the project.
Paleontology	NP	Based on a review of relevant maps, literature, and a preliminary field recon, no paleo resources will be affected by the action.
Rangeland Health Standards	PI	The McCullough #6 guzzler is located within the Hidden Valley grazing allotment. Four fundamentals of rangeland health are listed in Title 43 CFR § 4180.1. These include watersheds, ecological processes, water quality, and habitats. Impact to rangeland health are carried forward for analysis.
Recreation	NI	The proposed new guzzler within the NCA is very remote and will not impact recreational use. The proposed location of the McCullough #6 guzzler receives very limited recreational use, the predominate use in this are is hunting. This proposal would benefit hunting in this area. To be in conformance with the RMP no permitted activities would be allowed within 1/4 mile of this guzzler after it is placed, this has the potential to negatively affect commercial hunting guides who may use this area to guide clients.
Socio-Economics	NI	Water development projects that augment water resources to wildlife populations in ecosystems can provide social and economic values based on the held values of the individuals that make up society, individually and collectively. Direct-use benefits include wildlife viewing, photography, hunting, education, and research. Passive-use benefits include an appreciation of the beauty of the landscape and the natural systems it contains (existence value), appreciation these natural systems are maintained for and are passed on to future generations (stewardship and bequest values) (Kroeger and Manalo 2006). While these social and economic benefits may be present if the proposed action is realized, the action is unlikely to affect

		socioeconomics to a degree that further detailed analysis would be required. . Reference: Kroeger, T., & Manalo, P. (2006, July 26). A Review of the Economic Benefits of Species and Habitat Conservation. Retrieved December 8, 2014, from http://www.dnrec.delaware.gov/SiteCollectionDocuments/Open Spaces/Economic Benefits of Species and Habitat Conservation_Kroeger and Manalo_2006.pdf
Soils	NI	The proposed action includes minimal surface disturbance, there should be no impacts to the soils, as long as the work is conducted during non-precipitation periods and BMPs are followed.
Threatened, Endangered or Candidate Plant Species	NP	Based on known population occurrences and habitat requirements federally listed plant species are not present.
Threatened, Endangered or Candidate Animal Species	PI	The proposed guzzlers are in modeled desert tortoise habitat and thus impacts need to be analyzed.
Wastes (hazardous or solid)	NP	Not Present
Water Resources/Quality (drinking/surface/ground)	NI	The Proposed Action will not cause any major changes in the runoff characteristics of the site and will not use local water resources.
Wetlands/Riparian Zones	NP	No permanent surface waters or wetlands exist in or near the project area.
Wild and Scenic Rivers	NP	Resource not present.
Wilderness/WSA	NP/NP	Resources not present.
Woodland / Forestry	NI	Native seed, cactus and yucca are considered special forest products that are regulated under the BLM Nevada Forestry program. The proposed locations contain low densities of cactus and yucca, avoidance is expected to result in no impacts forestry resources.
Vegetation Excluding Federally Listed Species	PI	Based on known population occurrences and habitat requirements BLM special status plant species are not expected to be present. The proposed action will result in 0.18 acres of impacts native vegetation. The new construction of guzzlers is likely to result in increased herbivory of native vegetation as big horn sheep and other animals remain in the area. Impacts to vegetation are carried forward for analysis.
Visual Resources	NI	The proposed action, McCullough #6, is in a Class II VRM area. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. The nearest KOP to the proposed guzzler project is 9 miles away, Hwy 95 in Eldorado Valley. The proposed size of the project is not large enough to be seen from that distance. The color and reflective

		potential of the project could attract attention if measures are not taken to match the surrounding natural features. The dark basalt rocks surrounding the area lend to the color of the project being shadow gray. Any components of the project that may lend itself to being shiny should be painted a dull (flat) color, such as the shadow gray. This reduction in color and shininess would prevent the disturbance to the visual resources of the area. Sloan Canyon NCA McCullough #5: Also in Class II VRM area. It is doubtful a meaningful KOP exists for this site. The direction provided above for mitigating shine applies to proposed guzzler #5. This is a very remote hike requiring a helicopter or long strenuous hike.
Wild Horses and Burros	NP	The proposed guzzler installments in the McCullough Range are not located in an active herd management area, there will be no impacts to wild horses or burros.
Lands with Wilderness Characteristics	NP	There are no lands managed for wilderness characteristics.

3.1. Fish and Wildlife Excluding USFWS Designated Species

The proposed project area supports and is adjacent to lands that support wildlife characteristic of the Mojave Desert. Biological diversity varies according to topography, plant community, and proximity to water, soil type, and season. For a comprehensive discussion of potential wildlife species that may be present, refer to the most recent Resource Management Plan for the BLM Southern Nevada District.

3.1.1. BLM Sensitive Wildlife Species

BLM sensitive species are species that require special management consideration to avoid potential future listing under ESA and that have been identified in accordance with procedures set forth in BLM Manual 6840 – Special Status Species. A complete list of BLM sensitive species within the area can be found in the Resource Management Plan. Many of these species as well as other wildlife species of concern are also discussed in the Nevada State Wildlife Action Plan (NDOW 2012) and the Clark County Multiple Species Habitat Conservation Plan. Sensitive bird species are also provided protection by the Migratory Bird Treaty Act and thus are discussed in the Migratory Bird Section. The following sensitive wildlife species could potentially be impacted by the proposed action.

3.1.1.1. Chuckwalla (*Sauromalus obesus*)

Chuckwalla occur in rocky desert, lava flows, hillsides, talus slopes, and rock outcrops mostly below 5000 feet, where creosote bush is typically the dominant plant species. Chuckwalla will seek shelter in rock crevices and bask on rocks during the day. They are herbivorous, preferring annuals, but they will also eat perennial vegetation. Chuckwallas are relatively common throughout their Nevada range and likely occur within the project area, but would be localized on rock outcroppings.

3.1.1.2. Banded Gila monster (*Heloderma suspectum*)

Gila monsters occur in desert washes and rocky upland desert scrub at elevations below 5,000 feet. Banded Gila monsters frequently utilize lower slopes of mountains and nearby plains. They will use and are occasionally encountered out in gentler terrain of alluvial fans. Hence, Gila monster habitat overlaps habitats of both the desert tortoise and chuckwalla. Threats to this reptile include illegal collection, traffic fatalities, and habitat destruction and fragmentation from urban and agricultural development.

3.1.1.3. Bats

There are 20 BLM sensitive bat species that are known to occur within the general area. Day roosts include caves, rock crevices, trees, mines, buildings, and bridges. Little population information is known for most bat species within the area. In general, the long-term persistence of North American bat species is threatened by the loss of clean, open water; modification or destruction of roosting and foraging habitat; and, for hibernating species, disturbance or destruction of hibernacula. Chemicals in the environment may also impact bats through affects to the bats or their prey.

3.1.1.4. Desert bighorn sheep (*Ovis canadensis nesloni*)

Bighorn sheep habitat preference includes open, usually treeless vegetation types with plant communities containing grasses, sedges, and forbs for foraging, typically in close proximity to steep, rocky terrain for predator escape where they exhibit remarkable agility. Moisture is primarily derived through their diet of a variety of desert plants, however, surface waters are a vital component of their survival and important to population health. Desert bighorns have a lengthy lambing season that can begin in December and end in June. Bighorn sheep are known to occur in the McCullough Range where the proposed action would occur.

3.2. Migratory Birds

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 *et. seq*.) protects migratory birds and their nests. A list of MBTA protected birds are found in 50 C.F.R. 10.13. The list of birds protected under this regulation is extensive and the project site has potential to support many of these species, including BLM sensitive species, and their nests. Typically, the breeding season is when these species are most sensitive to disturbance, which generally occurs from February 15th through August 31st. The following sensitive bird species could potentially be impacted by the proposed action.

3.2.1. Loggerhead shrike (*Lanius ludovicianus*)

This species prefers open country with nesting habitat preference toward scattered trees and shrubs. They are commonly found in shrub habitat types, which in the project area includes desert scrub, and occasionally, open woodland. Perches are an important habitat component used for hunting. If natural perches are unavailable, they will perch on poles, wires or fence posts. Population trend data in Nevada has shown an unexplained 5 percent decline per year since 1966.

3.3. Threatened, Endangered or Candidate Animal Species

Threatened and endangered species are placed on a federal list by the U. S. Fish and Wildlife Service (USFWS) and receive protection under the Endangered Species Act of 1973 (ESA), as amended. The only federally listed species known to occur in the vicinity of the project area is the threatened desert tortoise (*Gopherus agassizii*). In the Mojave region, the desert tortoise occurs primarily on flats and bajadas with soils ranging from sand to sandy-gravel characterized by scattered shrubs and abundant inter-shrub space for herbaceous plant growth. They are also found on rocky terrain and slopes.

No tortoise survey data is available for the proposed guzzler locations. Both proposed locations are modeled as having marginal tortoise habitat in the USGS tortoise habitat model. Both sites are also within the elevation range of tortoise habitat for the region with McCullough #5 at 3,120 feet and McCullough #6 at 3,520 feet in elevation. The statging areas for the two proposed guzzlers will be in previously disturbed areas but surrounded by undisturbed tortoise habitat. Because tortoises may occur in the vicinity and undisturbed habitat exists in and adjacent to the project sites, there is potential for tortoises to wander into the project areas.

3.4. Livestock Grazing and Rangeland Health

The McCullough #6 guzzler is within the Hidden Valley Grazing Allotment located approximately 15 miles south of Las Vegas. Proposed guzzler #6 would be located on the eastern boundary of the allotment in the McCullough Mountains. The Hidden Valley allotment encompasses approximately 63,000 acres of BLM public land in Clark County. The allotment is grazed by cattle and is typically in use from November thru February with the number of cow calf pairs ranging between 40 and 111. The heaviest grazing use occurs on the valley floor north of Light Haul Road. Water is hauled into the allotment, and is used to regulate livestock use within the allotment.

3.5. Vegetation

The ecological systems in the project area are predominantly from the North American Warm Desert, Intermountain Basins Ecological Divisions, with elements from the Rocky Mountain and Colorado Plateau ecological systems in the eastern portion of the planning area. Vegetative communities within the planning area are based on mapping of land cover and ecological systems conducted by the U.S. Geological Survey during the Southwest Regional Gap Analysis Project (SWReGAP). Ecological systems within SWReGAP are defined as a group of plant community types (associations) that tend to co-occur within landscapes with similar ecological processes, substrates, and/or environmental gradients.

The proposed action is within Creosote bursage scrub . This vegetation community is the most abundant vegetation type in the Las Vegas and Pahrump Field Offices, occupying roughly 70 percent of the vegetation cover. This vegetation community is primarily the Sonora-Mojave Creosote bush-White Bursage Desert Scrub SWReGAP land cover classification. Creosote bush (Larrea tridentata) and bursage (Ambrosia dumosa) are generally the most conspicuous plant species present. This vegetation community occurs below 4,000 feet and is the primary habitat for the desert tortoise. Within the planning area, this vegetation category is composed entirely of the Sonora-Mojave creosote bush-white bursage desert scrub ecosystem. This vegetation consists of large, open expanses of vegetation that gradually integrated with saltbush scrub near valley bottoms and blackbrush at higher elevations.

There have been declines of this vegetation type since 1998 because of BLM realty actions and congressionally mandated land transfers (land sales, patents, and rights-of-way authorizations). This decrease has predominantly been on multiple-use lands within designated disposal boundaries and utility corridors. Important threats to this ecosystem include direct and indirect impacts resulting from anthropogenic activity, invasion by non-native annual grasses and increased fire frequency. Anthropogenic activities include grazing; development; highway and road construction; utility corridor construction; and recreational activity (casual OHV, concentrated OHV activities, and competitive races). Disturbances associated with these activities have fragmented habitat, increased edge effects, and created conditions that facilitate establishment on non-native annual grasses.

Since 1998, a significant portion of creosote bursage scrub in the planning area has burned due to colonization by non-native grasses. Compared to historic conditions, the quality of creosote bursage scrub in the planning area has also decreased because of non-native grasses. Due to the presence of non-native annual grasses, currently most of this vegetation category is classified as condition Class 2 at a moderate risk of losing key ecosystem components (see Wildland Fire Ecology and Management section). Higher densities of non-native annual grasses and increased fire frequency lead to decreased ecosystem functioning, a higher risk of wildfire, and result in lower quality habitats for wildlife. Historically, the Sonora-Mojave creosote bush-white bursage desert scrub ecosystem burned infrequently and contained substantial bare interspaces between shrubs with only low densities of annual grasses present. Currently, non-native annual grasses, including red brome (*Bromus madritensis ssp rubens*), cheat grass (*Bromus tectorum*), and Mediterranean grass (*Schismus* sp.), grow in significant densities under and between shrubs and create standing dead material that carries fire between shrubs and increases fire return intervals.

Temporary impacts to vegetation in this category can take decades to centuries to recover depending on the level of impact. Scott Abella (2010) estimates that without active restoration, it takes the Mojave Desert 76 years for re-establishment of perennial plant cover and 215 years for re-establishment of perennial and annual species cover. If disturbance is too frequent, recovery may be delayed or prevented entirely as soils become eroded or severely compacted. Slow recovery from disturbance means most impacts to this vegetation community will accumulate over time. The BLM restoration program is designed to facilitate natural recovery and reduce cumulative impacts to this vegetation type. Because this vegetation category does not recover quickly from disturbance, conservation actions may conflict with some multiple use management objectives.

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Chapter 4. Environmental Effects

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4.1. Proposed Action

4.1.1. Fish and Wildlife Excluding USFWS Designated Species

The proposed project would result in the loss of 0.18 acres of wildlife habitat (0.09 acres per guzzler). Construction using approximately 50 NDOW staff and volunteers and vehicles may also result in temporary disturbance to wildlife habitat due to trampling of vegetation. Depending on the amount of tramping, the vegetation may recover quickly or may take several years to return to pre-disturbance levels. The primary direct negative impacts of the proposed action on wildlife would be killing or maiming of ground dwelling animals, displacement of individuals, the permanent loss and fragmentation of habitat, and increased potential for harassment of wildlife. Displacing animals into neighboring habitats may lead to increased competition with resident individuals in those areas. Indirect impacts could include increased noise during construction, introduction and spread of weeds, and increased erosion potential. Wildlife species in the general area are common and widely distributed throughout the area and the loss of some individuals and/or their habitat should not have a significant impact on populations of the species throughout the region. Negative impacts to BLM sensitive species are not anticipated to lead to further decline of the species range-wide. Some impacts to sensitive species would be avoided and/or minimized through the special stipulations provided below. Many wildlife species, in addition to bighorn sheep, will benefit from the installation of the guzzlers because the guzzlers will supply reliable water sources in areas where little natural water is available. This benefit to wildlife species in the area presumably outweighs the potential negative impacts of installing the guzzlers.

4.1.1.1. Banded Gila monster and chuckwalla

Potential impacts to the banded Gila monster and chuckwalla from the proposed action would be similar to those discussed above for general wildlife but these can be minimized by the following special stipulations for Gila monsters.

- Any Gila monster encounters during project construction must be reported immediately to the NDOW personnel.

- Live Gila monsters found in harms way on the construction site will be captured and then detained in a cool, shaded environment (<85°F) by the project biologist or equivalent personnel until a NDOW biologist can arrive for documentation, marking and obtaining biological measurements and samples prior to releasing. Despite that a Gila monster is venomous and can deliver a serious bite, its relatively slow gate allows for it to be easily coaxed or lifted into an open bucket or box carefully using a long handled instrument such as a shovel or snake hook (Note: it is not the intent of NDOW to request unreasonable action to *facilitate captures; additional coordination with NDOW will clarify logistical points*). A clean 5-gallon plastic bucket with a secure, vented lid; an 18"x 18"x 4" plastic sweater box with a secure, vented lid; or, a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location, Global Positioning System (GPS) coordinates in Universal Transverse Mercator (UTM) using the North American Datum (NAD) 83 zone 11. Date, time, and circumstances (e.g. biological survey or construction) and habitat description (vegetation, slope, aspect, substrate) will also be provided to NDOW.

- Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. In the event a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses will not be covered by NDOW. However, NDOW will be immediately notified of any injury to a Gila monster and which veterinarian is providing care for the animal. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, date, time, habitat, and mapped location (GPS coordinates in UTM using NAD 83 Z 11).
- Should NDOW's assistance be delayed, biological or equivalent acting personnel on site should detain the Gila monster out of harms way until NDOW personnel can respond. The Gila monster should be detained until NDOW biologists have responded. Should NDOW not be immediately available to respond for photo-documentation, a digital or 35mm camera will be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures will be provided to NDOW at the address above or the email address below along with specific location information including GPS coordinates in UTM using NAD 83 Z 11, date, time and habitat description. Pictures will show the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); (3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

4.1.1.2. Bats

The general area supports a large diversity of bats, many of which are on the BLM sensitive species list. The proposed action will not have any direct impacts on bats and the installation of the guzzlers may provide water sources to bats in areas with very little natural water sources.

4.1.1.3. Desert bighorn sheep

Installation of the guzzlers will lead to a small loss of foraging habitat and desert bighorn sheep may be disturbed by vehicles operating in their habitat during construction. Animals may seek cover on steep slopes and ridges to avoid vehicular activity and associated noise pollution. Increased impacts may occur if construction activities occur during lambing season. After construction, though, installation of the guzzlers will create reliable water sources for bighorn sheep. The guzzlers will also help improve the bighorn sheep herd distribution and stability in the overall McCullough Range by reducing the distance between artificial water sources and thus reducing the likelihood of catastrophic events if individual guzzlers run dry during the summer.

4.1.2. Migratory Birds

Migratory birds in the project area, including the BLM sensitive loggerhead shrike, may be disturbed and/or displaced 0.18 acres of habitat removal and/or noise on the project site. Some species may benefit from dependable water source that the guzzlers would supply after construction. Depending on the time of year for construction, operation, or maintenance, there is the potential to disturb nesting birds within or immediately adjacent to the proposed action. Construction of the guzzlers must comply with the MBTA and avoid potential impacts to protected birds within the project area. The project will be required to adhere to the following mitigation measure:

1. Habitat-altering projects or portions of projects should be scheduled outside of the bird breeding season which generally occurs between February 15th and August 31st. If a project has to occur during the breeding season, then a qualified biologist must survey the area for nests immediately prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests are found, an appropriately-sized buffer area must be established and maintained until the young birds fledge. The buffer area must connect to suitable, undisturbed habitat. As the above dates are a general guideline, if active nest are observed outside this range they are to be avoided as described above.

4.1.3. Threatened, Endangered or Candidate Animal Species

The proposed project must comply with Section 7 of the Endangered Species Act of 1973 as amended (16 U.S.C. 1531 et seq.) for consultation with the USFWS on effects to federally listed species. The proposed action has a may affect, likely to adversely affect determination for the federally threatened desert tortoise (*Gopherus agassizii*) and no effect for its designated critical habitat, as the project is outside of this range. The proposed project will have no effect on any other federally protected species or designated critical habitat due to absence of the species and/or habitat.

Potential impacts to tortoise from the proposed action would be similar to those described in the Fish and Wildlife section including loss of 0.18 acres of potential habitat (0.09 acres per guzzler). If not noticed and avoided during construction or maintenance activities, desert tortoises could be either injured or killed (by crushing) or harassed (by being moved out of harm's way). The reliable water sources provided by the guzzlers may lead to localized increases in predator populations (e.g. ravens and coyotes) that could prey on tortoises. If best management practices for weed control are not followed, construction and maintenance activities could lead to the introduction and spread of invasive species. Any improvements to the access road to McCullough #6 could lead to increased use of the road by the public which could lead to tortoises being injured or killed on the road.

Section 7 consultation for this project is covered under the current Programmatic Biological Opinion (84320-2010-F-0365.R003) contingent on compliance with the terms and conditions for desert tortoise. Terms and conditions and minimization measures in the above Biological Opinion contain measures to avoid and minimize potential impacts, including take, to desert tortoise.

4.1.4. Livestock Grazing and Rangeland Health

The proposed action would result in direct effects to grazing operations and rangeland health in the Hidden Valley allotment. Construction of guzzler #6 would result in approximately 0.09 acres of permanent surface disturbance. Construction using approximately 50 NDOW staff and volunteers and vehicles would likely result in an additional 1.0 acres of acres of temporary disturbance to vegetation (trampling, drive and crush) within the allotment. Construction may include building a 200 foot long barbed wire fence with a gate or cattle guard to exclude livestock from the vicinity. This would make approximately 10 to 15 acres of the allotment unavailable for grazing by livestock. The direct effects to livestock operations in the Hidden Valley allotment would be negligible because the portion of the allotment affected is seldom used. The direct effect of constructing the exclusion fencing would also be negligible because of the remote location and low livestock grazing use in the area.

The proposed action would result in both positive and negative effects on different components of rangeland health. However, overall effect of the proposed on rangeland health would be negative. The four fundamentals of rangeland health are listed in Title 43 CFR § 4180.1. These include watersheds, ecological processes, water quality, and habitats. Installation of guzzler #6 would increase water availability; therefore, it would improve habitat quality for bighorn sheep. Introducing artificial water would result in increased bighorn sheep foraging which could have a localized negative effect on native vegetation, ecological processes and watershed function. Whether or not the negative effects to rangeland health are more widespread would depend on the number of sheep being managed within the bighorn sheep management unit. The proposed action would not adjust the number of bighorn sheep in the management unit; however, supplemental water is intended to reduce population die off during drought and will result in more animals using the unit over time. Because foraging by bighorn sheep in the unit would be higher, the overall impact to rangeland health would likely be negative. The level of effect could range between negligible and moderate depending on how successfully the guzzlers stabilize the bighorn sheep population.

The proposed action would result in indirect effects to livestock operations on the floor of Hidden Valley. In addition maintenance of the guzzler could result in indirect and cumulative impacts to livestock operations and rangeland health. During construction, noise and activity in staging areas would be expected to temporarily drive livestock away; livestock would be expected to return within a day or two after activity has stopped. To minimize this indirect impact on operations, all staging areas would be placed more than 0.5 miles away for watering sites used for grazing operations. Ongoing long term maintenance of the guzzler would include periodic water truck deliveries as periodic removal of debris from the guzzler and repair. The proposed action will use an existing road that has not been regularly used or maintained. The Hidden Valley allotment is within the Jean-Roach Lake Special Recreation Management Area, an area that is estimated to experience more than one million casual recreation users annually. Vehicular travel and any maintenance activities to the road has the potential to increase casual recreation in the area, which would in turn could cause stress on livestock. The stress would be an incremental addition to existing stress caused by casual recreation, vehicular traffic to the Sloan Canyon National Conservation Area and Light Haul Mine, recreational target shooting and OHV races in the allotment.

4.1.5. Vegetation

The proposed action would directly affect approximately 1.18 acres of creosote bursage scrub vegetation. Of the impact 0.18 acres are expected to be permanent and 1.0 acres are expected to be temporary, the result of trampling during construction and drive and crush associated with parking vehicles and staging supplies. The proposed action is expected to result in increased grazing in the vicinity of the guzzler by bighorn sheep (see rangeland health discussion). Grazing by bighorn sheep is expected to result in selective foraging which is expected to result in changes in vegetation community species composition and structure.

4.1.6. Cumulative Impacts

There are currently four existing bighorn sheep guzzlers in the McCullough Range and the proposed action would add two additional guzzlers. Cumulatively, this could lead to an increase in the bighorn sheep population in the area and also help distribute the population more evenly throughout the range. The additional water sources combined with the existing guzzlers will also

help decrease the chances for catastrophic events if one of the guzzlers were to go dry during the summer. The acres that would be disturbed by the new guzzlers are small and thus would not lead to a significant cumulative loss of habitat in the area. The installation of the guzzlers may lead to a small increase in the recreational use in the area, especially by hunters. The Hidden Valley area currently receives a high amount of recreational use, mainly OHVs. The potential increase in recreational use due to the guzzlers would be minor compared to the current levels. A large portion of the general area west of the proposed McCullough #6 guzzler is an active grazing allotment. If installation of the guzzlers leads to an increase in the bighorn sheep population, there could be some cumulative impact to the amount of forage available in the area but these potential impacts are assumed to not be significant.

Creosote bursage scrub vegetation is widespread in the Las Vegas and Pahrump field offices; however, it is a limited and finite resource. When combined with other reasonably foreseeable actions in the Las Vegas and Pahrump field offices, and impacts from fire, non native, competition with non native annual grasses, BLM reality and minerals actions and casual recreation, the proposed action would result in an incremental addition to current declines in the quality and quality of creosote bursage scrub in the Las Vegas field office.

4.2. Alternative B: No Action

Under the No Action alternative, the two new guzzlers would not be installed. Thus potential negative impacts such as loss of wildlife habitat and disturbance during construction would not occur. The vegetation where the guzzlers are proposed to be constructed would not be disturbed. Impacts to the grazing allotment due to the installation of the fence would not occur. Because installation of the guzzlers may or may not lead to an increase in the bighorn sheep herd size and the herd size may increase even without installation of the guzzlers, impacts to rangeland health and the grazing allotment in terms of forage availability may or may not be different under the no action alternative.

By not installing the guzzlers, though, the benefit of reliable water that the guzzlers would provide would not occur. Bighorn sheep could especially be impacted if the new guzzlers are not installed if one of the existing guzzlers were to run dry in the future. This could lead to the die off of some sheep that are not able to travel the long distances between the current guzzlers as has happened in the past.

4.3. Cumulative Impacts

The area of analysis of cumulative impacts is the North McCullough Range due to similar topography, vegetation types, and wildlife species composition. There are currently four existing bighorn sheep guzzlers in the McCullough Range and the proposed action would add two additional guzzlers. Cumulatively, this could lead to an increase in the bighorn sheep population in the area and also help distribute the population more evenly throughout the range. The additional water sources combined with the existing guzzlers will also help decrease the chances for catastrophic events if one of the guzzlers were to go dry during the summer.

The installation of the guzzlers may lead to a small increase in the recreational use in the area, especially by hunters accessing the proposed McCullough #6 guzzler. The Hidden Valley area currently receives a high amount of recreational use, mainly OHVs. The potential increase in recreational use due to the guzzlers would be minor compared to the current levels. For the Sloan

NCA, the majority of recreational use occurs on designated trails in the northern and western portions of the NCA. The proposed McCullough #5 guzzler would not be accessible or near any of these trails and thus no changes to recreational use levels in the NCA is anticipated.

A large portion of the general area west of the proposed McCullough #6 guzzler is an active grazing allotment. If installation of the guzzlers leads to an increase in the bighorn sheep population, there could be some cumulative impact to the amount of forage available in the area but these potential impacts are assumed to not be significant.

Creosote bursage scrub vegetation is widespread in the Las Vegas and Pahrump field offices; however, it is a limited and finite resource. When combined with other reasonably foreseeable actions in the Las Vegas and Pahrump field offices, and impacts from fire, non native, competition with non native annual grasses, BLM reality and minerals actions and casual recreation, the proposed action would result in an incremental addition to current declines in the quality and quality of creosote bursage scrub in the Las Vegas field office. While the majority of the North McCullough Range can be considered undisturbed, there are several existing projects that have cause ground disturbance and loss of vegetation. There are three transmission lines that cross the range at the north end of the Sloan NCA and there are nine transmission lines that cross through McCullough Pass at the south end of the analysis area. There several communication sites also at the north end of the range in the Sloan NCA. Sloan NCA has six designated hiking trails. There is a sand and gravel mining operation just northwest of McCullough Pass. The acres that would be disturbed by the new guzzlers are small and thus would not lead to a significant cumulative loss of habitat in the area.

4.4. Mitigation Measures

The following mitigation measures have been identified to help reduce the potential impacts of the proposed action.

1. The project will require an authorized desert tortoise biologist, monitor, or other approved by the BLM to present a desert tortoise education program.

2. The project will require an authorized desert tortoise biologist to conduct tortoise clearance surveys prior to construction and be on-call to move any tortoises out of harms way.

3. A tortoise monitor is required to be onsite during the guzzler installation.

4. Vehicle speed on project-related access roads without posted speed limits and in the work area will not exceed 15 mph.

5. Cross-country travel outside designated areas shall be prohibited. All equipment, vehicles, and construction materials shall be restricted to the designated areas.

6. All project/event-related individuals shall check underneath stationary vehicles before moving them. Tortoises often take cover under vehicles. All cars, trucks, and ATVs will be restricted to existing roads. New access roads will be created only when absolutely necessary and only when approved by BLM. Workers shall not drive or park vehicles where catalytic converters can ignite dry vegetation and to exhibit care when smoking in natural areas. Fire protective mats or shields shall be used during grinding or welding.

7. Vehicles and equipment shall be cleaned with a high pressure washer prior to arrival in desert tortoise habitat and prior to departure from areas of known invasive weed and nonnative grass infestations to prevent or at least minimize the introduction or spread these species.

8. Should there be concentrated areas of noxious weeds within the project area, additional spraying of equipment may be required to prevent the contamination of uninfested areas.

9. Cactus and yucca plants will be avoided during construction by shifting placement of each guzzler as necessary.

10. Hazardous and toxic materials such as fuels, solvents, lubricants, and acids used during construction will be controlled to prevent accidental spills. Any leak or accidental release of hazardous and toxic materials will be stopped immediately and cleaned up at the time of occurrence. Contaminated soils will be removed and disposed at an approved landfill site.

11. The proposed action may require importing of mineral materials during construction. If imported mineral materials are federally owned they need to be obtained in accordance with the regulations found at 43 CFR 3600 in the form of a contract or free use permit before they can be imported.

12. Before project construction, it will be determined whether or not the project meets the criteria for a County dust control permit.

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Chapter 5. Tribes, Individuals, Organizations, or Agencies Consulted:

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Table 5.1. List of Persons, Agencies and Organizations Consulted

Name	Purpose & Authorities for Consultation or Coordination
Cody McKee, Nevada Department of Wildlife	Cooperator on project, provided project description

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Chapter 6. List of Preparers

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Table 6.1. List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Mathew Hamilton	Wildlife Biologist	All
Fred Edwards	Botanist	Grazing, Range, Vegetation

Table 6.2. Internal Review by Resource Specialists

Name	Resource/Specialty
Lisa Christianson	Air Quality, GHG, Hazardous Wastes
Mathew Hamilton	ACECs, Fish and Wildlife, Migratory Birds, T&E Wildlife
Randy Kyes	Wilderness, WSA, BLM Natural Areas, Lands with Wilderness Characteristics
Mark Boatwright	Cultural, Paleontology
Susan Farkas	Environmental Justice, Sociology
Krystal Johnson	Wildhorse and Burro, Farmlands
Boris Poff	Floodplains, Hydrology, Soils, Water Resources, Wetlands/Riparian
Ben Klink	Fuels, Fire Management, Invasive Species
Evan Allen	Geology
Kerri-Anne Thorpe	Lands
Fred Edwards	Livestock Grazing, Rangeland Health, T&E Plants, Woodland/Forestry, Vegetation
Chris Linehan	Recreation, Wild and Scenic Rivers
John Schumacker (LVFO), Brenda Warner (Sloan NCA)	Visual Resources